

Kolloquium Mathematische Physik

Agnes Radl

Universität Greifswald

The numerical range of positive operators

The numerical range of a linear operator A on a Hilbert space H is defined as $W(A) := \langle Ax, x \rangle : x \in H, \|x\| = 1$. It is well-known that the closure of the numerical range contains the spectrum. Hence, it can be used to localise the spectrum. In this talk, we will first study symmetry properties of the numerical range of positive operators in Hilbert lattices. Then we will investigate various generalisations of the numerical range. It turns out that the numerical range exhibits a certain rotational symmetry which is similar to the rotational symmetry of the spectrum of a positive operator.

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